Informatics in Medical Practice: Billing Systems Survey by the Hawaii Medical Association

Randolph K.M. Wong MD*

The Information Age has arrived! Our offices are quickly integrating information machines for the business part of our profession, just as the stethoscope and scalpel are requisites for the practice of medicine and surgery. The mission of the HMA Computer Committee is to provide guidance in the direction of medical informatics for its members. We hope to assist the membership in the selection, evaluation and use of the products relating to the processing of information in the modern practice of medicine.

During the spring of 1992, the committee set out to poll the HMA membership on their use of computerized billing systems. It was our intent to discover what was available and to examine the differences in the various billing processes in order to provide a comparative study for the membership. The results of this survey are presented here for your perusal. The questionnaire was mailed to the entire membership census of 1,750. Forty-seven responses were received from offices and from nonphysician vendors, representing 218 physicians for a response rate of 12.45%. When the vendors who filed questionnaires were excluded, 36 physicians responded (2.06%).

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The low response rate must be taken into consideration when interpreting these data and statistical significance cannot be implied. It also is important to interject that there have been many changes in this industry since this poll was taken. These products have likely changed or been upgraded to keep up with changes in the health care environment. However, the data do provide a snapshot of what was available and in use during the spring of 1992.

The responses demonstrated a dominance of IBM or IBM-compatible microcomputer systems. Microsoft DOS, or a compatible operating system, was also in the majority. One system was using UNIX; several were networked with Novell Netware. There were no Apple- or Macintosh-based systems reported. There were no responses from mainframe systems although one vendor who was interviewed, Praxis, offers a multilevel platform information service integrated with the office billing system.

Figure 1 represents a breakdown of the returns submitted by the end-users (either the physicians or their office staff) and by the vendors of the various software products; we had requested that the person most familiar with the information system complete the questionnaire. Although we were referring to the end-user in the office staff, it was apparent this person wasn't always the most technically knowledgeable about the software or hardware specifications. Many of the offices quickly tossed the questionnaire over to their vendors. It could easily be determined that there were a couple of vendors of products who readily filled out the questionnaires for their clients. The vendors often chose to collect the questionnaires and submit one to represent their clients collectively. Although this might indicate an additional support service provided by these vendors, the relative distribution shown should not be taken as representative of the distribution of products in our community.

Because we wanted to get an idea of customer satisfaction with the use of these products, the remainder of this study deals only with those questionnaires submitted exclusive of the vendor provided information. Figure 2 shows the break-

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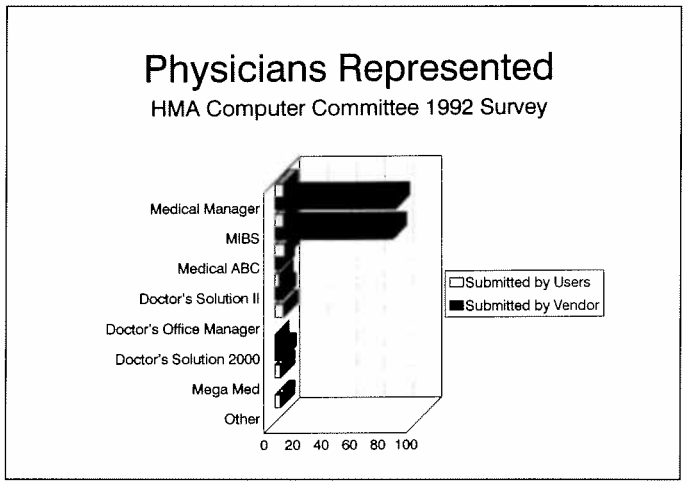

Table 1

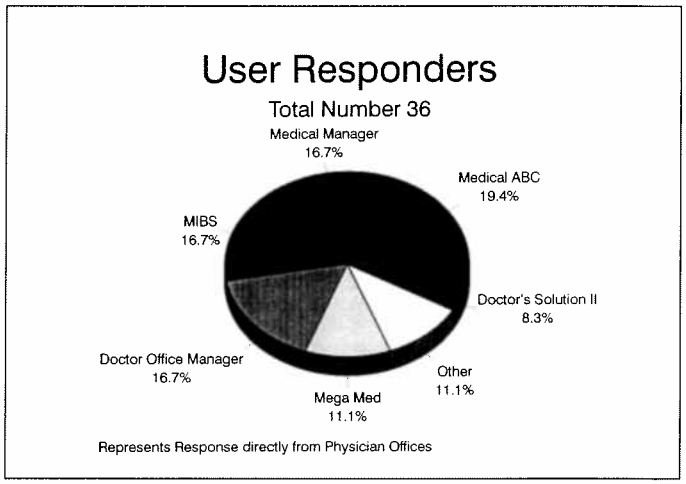

Table 2

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down of billing products from the 36 user-submitted questionnaires. Again, these numbers do not provide any significant statistical confidence but are being presented for purposes of information only. It is interesting that the user-submitted responses were fairly evenly distributed over 6 products. These products were then chosen for the comparative evaluation that follows.

The average reported cost for the software and hardware is shown in Figure 3. Some of the responses were necessarily subject to special interpretation as the total cost of the package was occasionally submitted. However by scanning the responses, it was somewhat obvious which numbers were the appropriate ones to determine accuracy. These numbers represent the purchase price of systems over a period of time when significant changes in cost occurred as technology advanced. What one office might have paid several years ago might not be exactly the same product that another will buy tomorrow although the product could be under the same name. Software upgrades, higher hardware requirements, changes in levels of technical support and training could serve to change the price or value of a product. The evolution of the microcomputer processor has fueled an incredible industry over the past decade. What one office bought years ago is likely to be nearing obsolescence; the office might be looking toward a series of both software and hardware upgrades more and more as technology, health care and governmental regulations continue to evolve.

The high and low range of system costs are presented in Figure 4. These costs vary because of user-options as well as vendor-recommended configurations for the various needs of the medical office. Some systems are appropriate for the solo practitioner and should be available at the low end of these ranges. Many of these systems are excellent for small groups or partnerships and can effectively have their cost spread over several physicians' practices. The high-end systems are in those offices that have opted to install networked computing terminals or personal computers (PC). Those costs also could have included other peripheral devises such as printers, modems, fax boards, and other software not specific to the billing.

Figure 5 shows that in early 1992 most of these systems were operating with hardware that now are considered to be obsolete by today's PC standards. Yet it is reassuring to know that the older hardware still can be useful. It is likely that the current system configurations are being installed with 486 microprocessors, at least 2 generations beyond those presented here, and with a minimum of 2 to 4 megabytes (MB) of random access memory (RAM). It also is likely that the current versions of the software have increased their program and data-space requirements.

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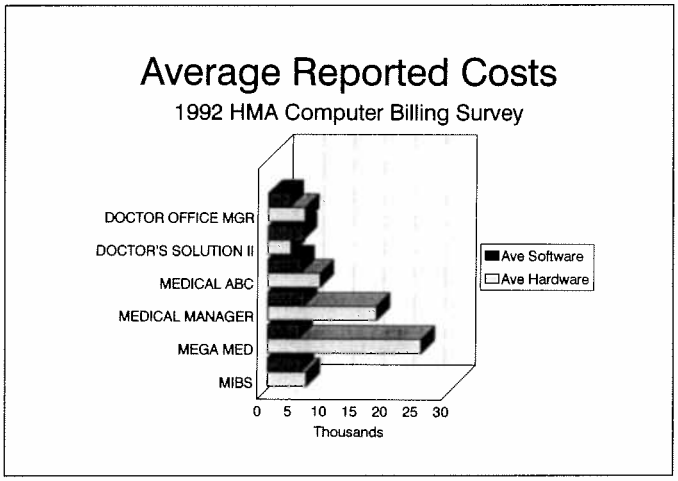


Table 3

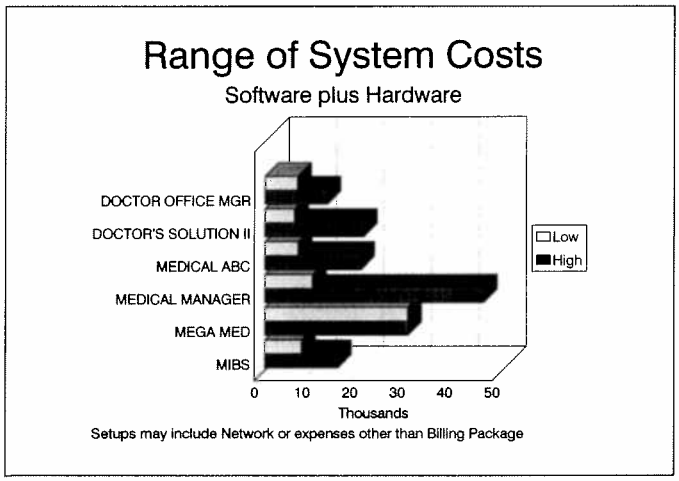
Minimal System Requirements

In Use as of May, 1992

Program	Processor	RAM (KB)	Program Files (MB)	Data Files (MB)
Dr. Office Mgr.	286	640	6	30
Dr. Solution II	286	256	7	30
Medical ABC	286	640	2	9
Medical Mgr.	8088	512	2	3
MegaMed	286	640	5	n/a
MIBS	8088	512	2	40

Current application requirements have likely been upgraded

Table 4



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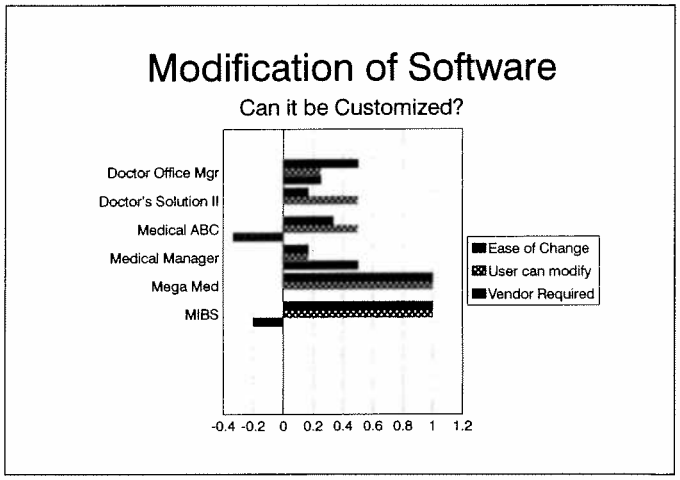

Table 6

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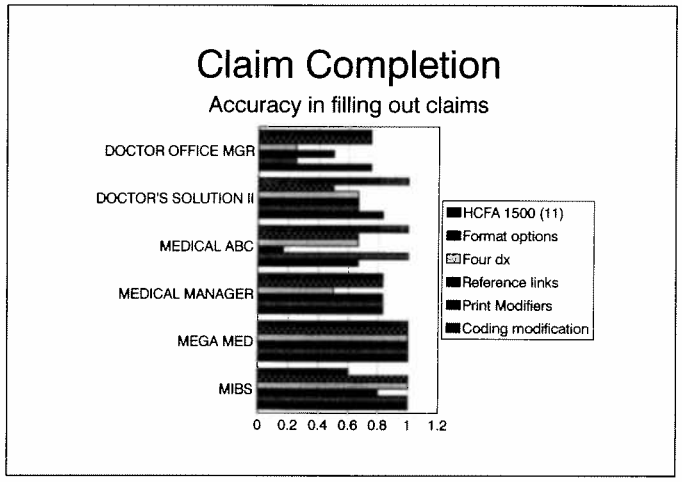
The next series of figures were determined by weighting the responses to specific questions. Weights were based on the user's perception of features of their billing system. We acknowledge that variability in technological aptitude, computer literacy, and experience with use of the system are difficult to evaluate. Some of the responses indicated an inability to understand the questions asked and many questions went unanswered. When compiling the data, unanswered questions were considered neutral with zero weight (0). Affirmative answers were granted a positive weight (1) and negative answers were considered negative (-1). The answers were then averaged with regard to the product group and presented in the following charts. The highest degree of agreement is represented by the value 1.0, the lowest value of -1.0 represents the negative response.

Modification of the software (Figure 6) pertains to the ability of the product to be customized to accommodate changes in the fee structures and to accommodate coding changes. This feature usually can be performed by the user on a limited basis by defining default settings or choosing options offered by the software. The degree of modification required depends in part on the willingness of the user to accept the features offered. If the software does not support an essential function, either the office must change to accommodate this flaw or the vendor must modify the product, which might make it difficult to upgrade later.

Claim-completion (Figure 7) requires that the billing system complete the top half of the HCFA 1500 correctly with the proper format (ie, patient's last name first). The system should allow for additional options of format for unique forms (ie, Medicaid, Blue Shield). "Four dx" per-



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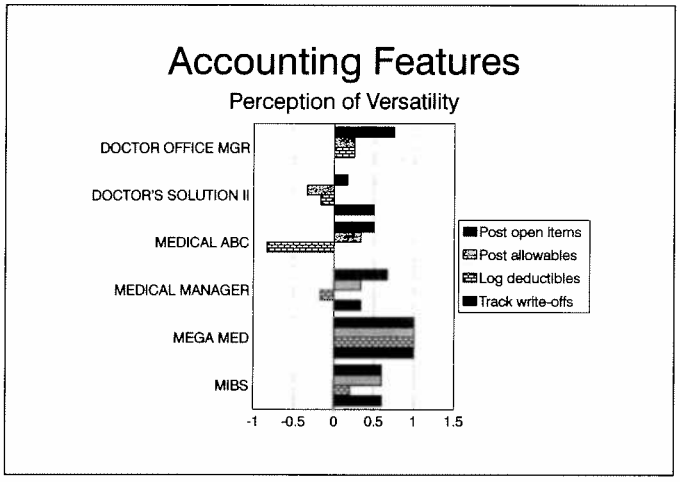

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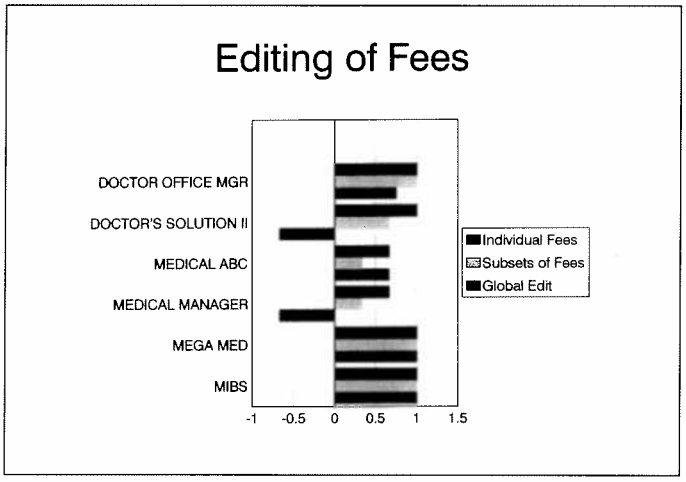

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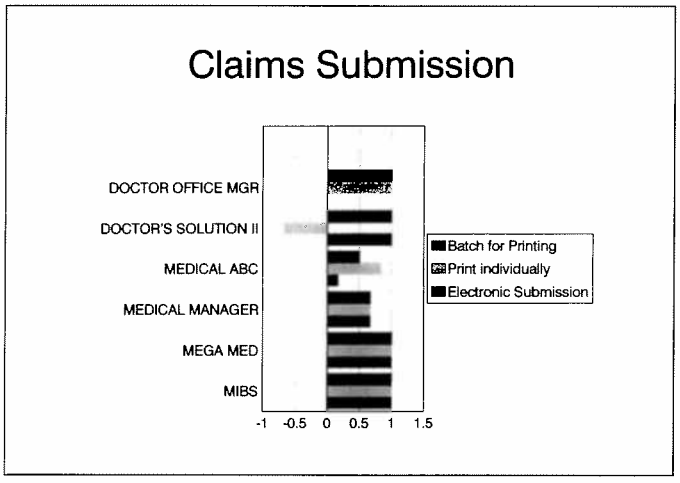

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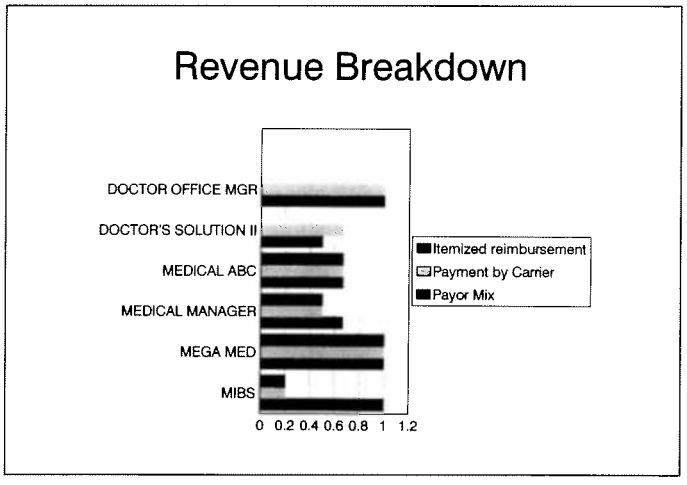

Table 11

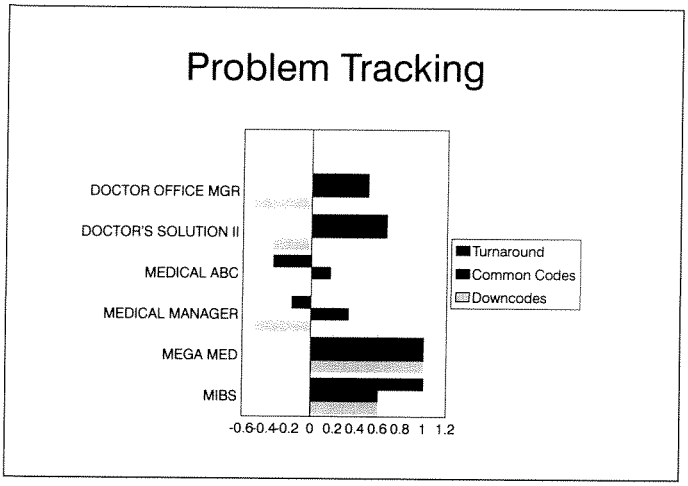

Table 12

tains to the ability to enter 4 or more ICD-9 codes to support the procedure codes. Reference-linkage provides for numbers 1 to 4 in BOX 24D to allow proper referencing of ICD-9 and CPT codes. Modifiers should be printed on the form correctly (2 digits). Modification of coding should be available as changes. These systems do change.

Figure 8 shows the desired accounting features. The office should be able to post charges as itemized entries as opposed to an open balance. *Allowables* should be able to be posted by both CPT code and by carrier for better evaluation of revenue. Deductibles should be logged for each patient and plan, to be able to know what the patient will pay. Write-offs should be tracked by the insurance carrier, with a memo for the reason, and assigned to a specific physician (if used for multiple physicians).

Figure 9 outlines the features desired for the submission of claims. Batching of claims can be useful for logistical efficiency. Claims should be printed individually for point-of-service billing. Electronic claim submission currently is being supported by third-party carriers and will likely be the dominant method of the future.

Proofreading the fee schedule (Figure 10) is a required process in most offices. The ease of doing this can vary considerably but should not require vendor assistance. Editing of individual fees could be required to adjust for changes in the cost of supplies or technique. Subsets of fees should be explained to provide flexibility (ie, all office procedures, but not consultations or office visits). Global-fee adjustments could be required at least annually (ie, a 5% increase across the board).

In evaluating the revenue (Figure 11), much information is available to guide the direction of the practice. Unfortunately, most physicians don't take an adequate amount of time to review these issues. The billing system should allow for the tracking of *itemized* reimbursement rather than an open account. Payments by carrier will provide information on the discounts and allowables to be written off. The breakdown of your payer mix will provide information on the changes in direction and goals for the practice.

Figure 12 demonstrates the ability to track problem issues. Payer turnaround time obviously should be as short as possible. The most frequently filed CPT and ICD-9 codes should be logged; accounting of the common downcoded and rejected claims should be analyzed and evaluated periodically.

Remember, the data presented are at least 1 1/2 years old. Significant efforts have been made by the vendors to keep up-to-date and competitive. The data presented here do not represent an endorsement by the Hawaii Medical Association or of the Computer Committee. There are many other systems and products available that have not been given the opportunity to interface with the Committee. Any questions about the technical features of any product should be directed to the vendor for more current information. The Hawaii Medical Association can provide a list of names of members of the Computer Committee involved in the evaluation of some of these systems.

Following is a list of the current systems that have been evaluated by the HMA Computer Committee.

Program: Doctor Office Mgr
Distributor: QMC Physician Support Systems
Phone: 547-4757
Address: 222 S Vineyard St No. 403
Honolulu, HI 96813

Program: Doctor's Solution II
Distributor: Integrated Services
Phone: 536-3364
Address: 615 Piikoi St., Suite 601
Honolulu, HI 96814

Program: DS-2000
Distributor: Integrated Services
Phone: 536-3364
Address: 615 Piikoi St., Suite 601
Honolulu, HI 96814-3195

Program: Medic
Distributor: Mark Winchester
Phone: (415)259-7542 or (800)334-8534 X 4014
Address: 1633 Bayshore No.106
Burlingame, CA 94010

Program: Medical ABC
Distributor: Greg Larson
Phone: 521-2800
Address: 537 Pensacola St
Honolulu, HI 96814

Program: Medical Manager
Distributor: Ruby Benssen
Phone: 524-1740
Address: 1221 Kapiolani No.647
Honolulu, HI 96813

Program: Mega Med
Distributor: Mega West Systems
Phone: (801)487-0788
Address: 345 Bearcat Drive
Salt Lake City, UT 84115

Program: MIBS
Distributor: Bill Liggett
Phone: 521-2397
Address: Century Sq Suite 3010,1188 Bishop St
Honolulu, HI 96813-3312

Program: Praxis
Distributor: Datahouse
Phone: 941-3363
Address: Ala Moana Bldg, Suite 1500,
1441 Kapiolani Blvd
Honolulu, HI 96814-4490

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